



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/620,928	07/16/2003	Iwao Moriyama	121036-057	8853
35684	7590	04/06/2004	EXAMINER	
BUTZEL LONG 350 SOUTH MAIN STREET SUITE 300 ANN ARBOR, MI 48104			REDDICK, MARIE L	
			ART UNIT	PAPER NUMBER
			1713	

DATE MAILED: 04/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/620,928	MORIYAMA ET AL.	
	Examiner	Art Unit	
	Judy M. Reddick	1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 07/16/03;01/16/04.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 3-5 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 3-5 is/are rejected.
- 7) Claim(s) 4 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 07/16/03.
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____.

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on 12/24/99. It is noted, however, that applicant has not filed a certified copy of the Japanese application as required by 35 U.S.C. 119(b).

Information Disclosure Statement

2. The information disclosure statement filed 07/16/03 has been considered and scanned into the application file.

Drawings

3. This application lacks formal drawings. The informal drawings filed in this application are acceptable for examination purposes. When the application is allowed, applicant will be required to submit new formal drawings.

Specification

4. The disclosure is objected to because of the following informalities: On page 4 @ line 21, "bron" should read "boron".

Appropriate correction is required.

Claim Objections

5. Claim 4 is objected to because of the following informalities: It is believed that "sulphonamide" should read "sulphenamide", consistent with the specification @ page8, lines 1-5.
5. Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. **Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

The recited "an alkali metal salt of inorganic or organic acid, and alkali metal hydroxide" per claim 5 constitutes indefinite subject matter as per it not being readily ascertainable if the "alkali metal hydroxide" is intended to be recited in the alternative or in conjunction with the "metal salt of inorganic or organic acid".

Claim Rejections - 35 USC § 102

8. **The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:**

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. **The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:**

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. **Claims 3 and 4 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Greene et al(U.S. 3,883,472).**

Greene et al teach an elastomeric composition having good scorch resistance, said composition defined basically as containing a) a polymeric component which is an acrylic ester/butenedioic acid monester dipolymer or ethylene/acrylic ester/butenedioic acid monoester terpolymer, b) a vulcanizing agent selected from polyfunctional, organic, primary amines and their salts, the amount of the polyamine being about 0.06 - 0.30

mole of amino function per kilogram of polymer, and c) at least one vulcanization accelerator which includes alkali metal salts of inorganic acids and alkali metal hydroxides, alkali metal salts of organic acids, tertiary amines, guanidine compounds and heterocyclic tertiary amines with the provisos that the acrylic ester is a C1 to C4 alkyl acrylate or methacrylate, the butenedioic acid monester is a C1 to C12 alkyl or C6 to C12 aryl monoester, the dipolymer contains about 1-10 weight percent of the butenedioic acid monoester and the terpolymer contains about 2 to 10 weight percent of the butenedioic acid monoester, and the proportion of all the ester groups in the terpolymer is equivalent to about 2.5 - 8.0 moles of ester groups per kilogram of polymer (col. 1, lines 30-58, col. 2, lines 68, col. 3, lines 1-46 and the claims). Greene et al further, at lines 47-52 teach that two or more accelerators as defined herein may be used and that the preferred accelerators are those of classes (4) and (5) because they have the minimum effect on compound scorch (premature curing at low temperature) and on the heat resistance of the vulcanizates and include tertiary amines and guanidine. Greene et al per the Runs teach copolymers of ethylene/methyl acrylate and ethyl hydrogen maleate in combination with a polyamine(HMDA) + a tertiary amine(triethylenediamine, tetramethylbutanediamine) or tetramethylguanidine(See TABLE 1, Runs 10A, 11A and 13A, used simulatenously). Green et al therefore anticipate the instantly claimed invention with the understanding that the elastomeric compositions per Greene et al overlap in scope with the claimed elastomer composition. As to the level of residual ester monomer, it appears that such is taught(at least col. 1, lines 43-49). In any event, the burden is shifted to applicants to show that the disclosed conventional means(col. 2, lines 16-30) would result in monomer levels outside the scope of the claimed invention. It has been held that where applicant claims a composition in terms of function, property or characteristic where said function is not explicitly shown by the reference and where the examiner has explained why the function, property or characteristic is considered inherent in the prior art, it is appropriate for the examiner to make a rejection under both the applicable section of 35 USC 102 and 35 USC 103 such that the burden is placed upon the

applicant to provide clear evidence that the respective compositions do in fact differ. In re Best, 195 USPQ 430, 433 (CCPA 1977); In re Fitzgerald et al., 205 USPQ 594, 596 (CCPA 1980). Even if it turns out that the instantly claimed invention is not anticipated, it would have been obvious to the skilled artisan to extrapolate, from the disclosure of Greene et al, the defined acrylic elastomer composition, as claimed, as per such having been within the purview of the general disclosure of Greene et al and with a reasonable expectation of success. Further, it would have been obvious to one of ordinary skill in the art to use conventional vaporizing under reduced pressure, stripping conditions and water washing techniques so as to reduce monomer level falling within the scope of the claims.

Claim Rejections - 35 USC § 102

11. Claim 3 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Greene(U.S. 3,904,588).

Greene disclose elastomeric compositions comprising copolymers of ethylene, methyl or ethyl acrylate, and 0.5 to 10 wt.% of a monoalkyl butendioic ester(col., 1 lines 20-25).

Greene further teaches that the elastomeric compositions can be cured using a vulcanizing agent derived from a peroxide coupled with a coagent which includes polyfunctional compounds containing multiple unsaturated groups(col. 3, lines 13-42).

Green further @ col. 3, lines 43-49 teach that other vulcanizing agents that can be used with the copolymers include polyamines. As per col. 2 @ lines 39, it is taught that the copolymers are made in a continuous process with 5 to 12 wt.% conversion of monomers to polymer and the unreacted monomers and solvent are removed by conventional means, e.g., vaporizing under reduced pressure and at an elevated temperature. It is tenable that such a process would leave at least 0.005 wt.% of the monoalkyl butendioic ester monomer(the highest boiling monomer) present (0.1% of 5 wt.%) unless extraordinary stripping conditions are used. The burden is shifted to applicant to show that the disclosed conventional means would result in monomer levels outside what is being claimed. Refer to the above citation to In re Best and In re Fitzgerald.

Alternatively, purer form of known products may be patentable, but the mere purity of a product, by itself, does not render the product unobvious as provided for under the guise of *Ex parte Gray*, 10 USPQ 2d 1922(Bd. Petschke et al. App. & Inter. 1989).

Even if it turns out that the claims are not anticipated by Greene, it would have been obvious to the skilled artisan to cull, from the disclosure of Greene, the precisely defined acrylic elastomer composition, as claimed, as per such having been within the purview of Greene's disclosure and with a reasonable expectation of success.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

14. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

15. **Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Greene(U.S. 3,904,588) in combination with Greene et al(U.S. 3,883,472).**

The disclosures of each of Greene and Greene et al are relied upon for all that they teach as set forth in the rejection of paragraph 11 supra as applied to claim 3 and paragraph 10, as applied to claims 3 & 4, respectively. Further, it would have been obvious to the skilled artisan to add the guanidine accelerator of Greene et al, identified as an operable companion to the curing agents which include polyamines such as hexamethylenediamine and useful in similar such elastomeric compositions, to the polyamine-containing elastomeric composition of Green and with a reasonable expectation of obtaining the cumulative additive effect, i.e., a reasonable expectation of success, absent a clear showing of unexpected results, commensurate in scope with the claims.

Claim Rejections - 35 USC § 102

16. **Claim 3 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Wolfe, Jr.(U.S. 4,782,110), optionally in view of Greene(U.S. 3,904,588).**

Wolf, Jr. discloses crosslinked elastomeric ethylene/alkyl acrylate copolymers comprising ethylene, an alkyl acrylate and a monoalkyl ester of 1,4-butenedioic acid (col. 2, line 46 to col. 3, line 4). The alkyl acrylates include ethyl acrylate and butyl acrylate, and a mixture of the two, at the same time, would have been readily envisioned as they are identified as equivalent in scope. Specific monoalkyl esters of 1,4-butenedioic acid include monoethyl maleate. Specific conditions of polymerization include high pressure and temperature. Although the amount of unpolymerized monoalkyl maleates is not specifically disclosed, the burden to show that it is outside of the instantly claimed range as provided for under the guise of *In re Best* and *In re Fitzgerald* (reference the citation supra).

Alternatively, even if it turns out that the instantly claimed invention is not anticipate, it would have been obvious to the skilled artisan to cull, from the disclosure of Wolfe, Jr., the defined crosslinked acrylic elastomer composition as per such having been within the purview of the general disclosure and with a reasonable expectation of success. To the extent that the method of polymerization and reactants are similar to that employed by Greene discussed *supra*, it would have been obvious to the skilled artisan to use the continuous process discussed *supra* wherein it is taught to strip residual monomers from the polymer product and, with a reasonable expectation of success.

Double Patenting

17. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

18. Claims 3-5 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-11 of U.S. Patent No. 6,015,860. Although the conflicting claims are not identical, they are not patentably distinct from each other because the acrylic elastomer composition containing a carboxyl group-containing acrylic elastomer, a polyfunctional isocyanate compound, and at least one of a guanidine, a quaternary onium salt, a tertiary amine and a tertiary phosphine as a vulcanization accelerator per the claims of copending application U.S.'860 overlaps in scope with the acrylic elastomer composition containing a cross-linking agent, viz., a polyamine or a polyfunctional isocyanate compound or blocked isocyanate and at least one of a quaternary onium salt, a guanidine compound, etc. as a vulcanization accelerator per the claims of the instant application. The interchangeability of one

well known crosslinking agent over another is a matter of ordinary choice to the skilled artisan and with a reasonable expectation of equivalent results.

19. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being obvious over Kuzumaki et al(U.S. 6,015,860).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(I)(1) and § 706.02(I)(2). All of the components of the instant claims(3 & 5) appear to be present in Appl'860 except a polyamine, as a crosslinking agent. Although the "polyamine" crosslinking agent is not taught, the interchangeability of one well known crosslinking agent for another is a matter of ordinary choice to the skilled artisan and with a reasonable expectation of equivalent results. As to the level of unreacted butenedioic acid monomer, this may very well be inherent in the elastomeric acrylic copolymer of U.S.'860. In any event the use of conventional stripping and washing techniques for reducing the level of monomer content would have been an obvious expedient.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

20. Claims 3 and 5 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kuzumaki et al(U.S. 6,015,860).

Kuzumaki et al teach an acrylic elastomer composition, which comprises a carboxyl group-containing acrylic elastomer, a polyfunctional isocyanate compound or a blocked isocyanate and at least one of a guanidine a quaternary onium salt, a tertiary amine and a tertiary phosphine and that the composition has an improved scorch resistance without lowering the normal state physical properties, heat resistance and compression set characteristics of the resulting vulcanization products, when the polyfunctional isocyanate used, or has an improved scorch resistance, particularly at high temperatures, without lowering the vulcanization speed when the blocked isocyanate is used(Abstract, cols. 2-4, Runs and claims). Kuzumaki et al therefore anticipate the instantly claimed invention. As to the level of unreacted butenedioic acid monomer, this may very well be inherent in the elastomeric acrylic copolymer of U.S.'860. In any event the use of conventional stripping and washing techniques for reducing the level of monomer content would have been an obvious expedient. Refer to the citation involving *In re Best et al* and *Fitzgerald et al* supra.

Claim Rejections - 35 USC § 103

21. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kuzumaki et al(U.S. 6,015,860).

The disclosure of Kuzumaki et al is relied on for all that it teaches as set forth in the rejection per paragraph no. 20 and applied to claims 3 & 5. Further, the interchangeability of one well known cross-linking agent for another is a matter of

ordinary choice to the skilled artisan, absent some evidence of unusual or unexpected results, and with a reasonable expectation of equivalent results.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Judy M. Reddick whose telephone number is (571)272-1110. The examiner can normally be reached on Monday-Friday, 6:30 a.m.-3:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (571)272-1114. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Judy M. Reddick
Judy M. Reddick
Primary Examiner
Art Unit 1713

JMR *Jmre*
03/20/04